Volunteer Firemen

APRIL

1943

NATIONAL FIRE PROTECTION ASSOCIATION
INTERNATIONAL
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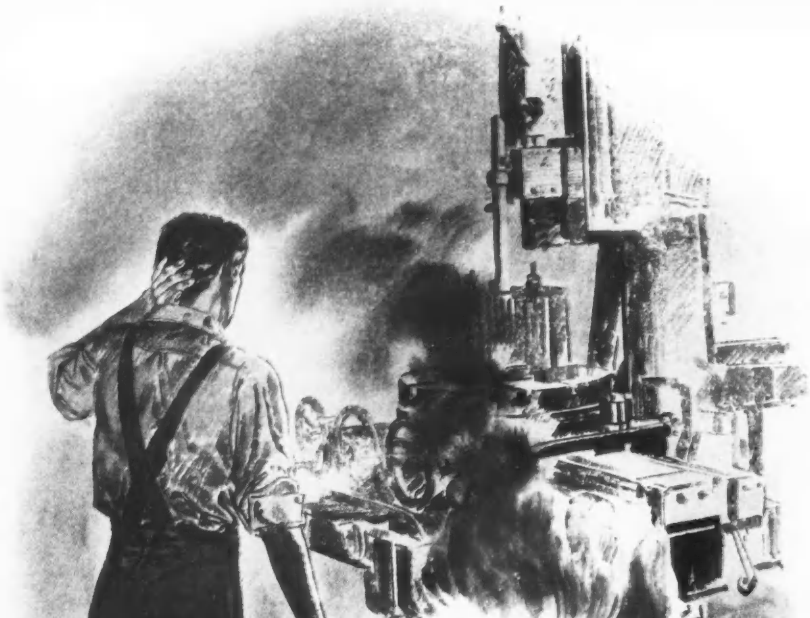

Did you forget to tell him what to do now?

● It's a fire-fighting axiom that the first 60 seconds of a fire are the most important. If something goes wrong then, you may have a real blaze on your hands.

Alert management, recognizing this, carefully trains its employees to fight fire. It picks key men in the plant, teaches them how different fires behave, how various extinguishers must be handled.

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THIS ADVERTISEMENT IS ONE OF A SERIES APPEARING CURRENTLY IN INDUSTRIAL PUBLICATIONS.

Volunteer Firemen

IT is an established scientific principle that once growth ceases, death must inevitably follow. The Editors submit this enlarged and improved magazine as evidence of the vitality of the Volunteer Firemen's Section. With this issue, VOLUNTEER FIREMEN comes to readers for the first time, a larger publication bound between heavy covers. No longer will the magazine be mailed in half-size envelopes. Henceforth your copy will reach you without objectionable folds. These improvements are but logical steps in a progressive program made possible by the increasing support of members and advertisers, which the Editors gratefully acknowledge.

VOLUNTEER FIREMEN has continued to grow through business depression and war because it fills a definite need; because it alone serves the thousands of departments which protect the smaller cities and towns, and industrial establishments from the ravages of fire. The magazine was conceived as the official journal of the Volunteer Firemen's Section of the N.F.P.A. This it will continue to be. The increase in the number of pages makes possible the inclusion of material which in the past has necessarily been omitted. Members of the Section are encouraged at all times to send any comments they may have to the Editors.

THE cover picture this month shows a recent test of auxiliary trailer pumps in Cincinnati. One of these pumps has been assigned to each fire station in the city and provided with a crew of ten auxiliary firemen. The pumps are being used to give the auxiliary firemen training in pumper operation. The Cincinnati auxiliaries have already qualified in other phases of basic fire department drill.

The auxiliary firemen of Cincinnati not only have assignments while they are at home at night, but they also have assignments near their places of business should an air raid occur during the day. Director of Public Safety Louis G. Schraffenberger reports that the auxiliary equipment in the city has been standardized so that regardless of where the men are assigned they will find equipment with which they are familiar. Further, this has made it possible to transfer auxiliary firemen from one company to another to keep crews equalized at all times.

As additional companies of trained auxiliary firemen become available it is planned to station some of the auxiliary pumps at strategic locations between the regular city fire stations and train new crews to man the auxiliary apparatus at the fire stations.

Volume 10 Number 4

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-THE VOLUNTEER FIREMAN

VOLUNTEER fire departments can take considerable pride in the fact that the preliminary estimates of fire loss for 1942 indicate a reduction in loss over the losses in 1941, this in spite of the fact that there was a heavy increase in industrial fire loss in 1942. It appears that a reverse trend from the trend of recent years took place in 1942. For several years prior, dwelling and farm and rural losses had been on the increase and industrial losses had been on the decrease. As the farm and rural areas of the country are protected almost entirely by volunteer fire departments, the reduction in loss in these areas is reason for great satisfaction.

It is interesting to speculate on the factors operating to affect fire losses in this war period. Among the favorable factors which operate to reduce losses might be cited the increased public awareness of the hazards of fire because of the widespread use of incendiary bombs as a weapon of warfare and because of the training of millions of citizens in the elements of fire control in local civilian defense activities. Another important favorable factor is the great conservation program carried on by the War Production Board which has brought out from attics, cellars and basements, large quantities of combustible materials. Another favorable factor is that buildings and materials that are burned today are very difficult to replace and there is, therefore, every incentive to take care to prevent fire loss.

Looking at the other side of the picture, there are a number of fundamental reasons why industrial losses are on the increase. We are in a period of speed up of production and plants are working 24 hours a day in many cases instead of 8 or 10 hours. The normal industrial hazards, therefore, are multiplied. Many untrained workers have entered industry and have not had the opportunity for instruction in fire precautions which the older hands have had. Under wartime conditions there is an enormously greater concentration of values so that fires that do occur are much more likely to be big fires.

The fighting of fires and the measures taken to prevent fires are obviously of more importance in wartime. We cannot afford to burn up essential materials needed on the battle fronts or materials needed to sustain us on the home front. Every volunteer fireman today ought to realize that his contribution of time and energy as a fireman is truly a contribution towards the winning of the war.

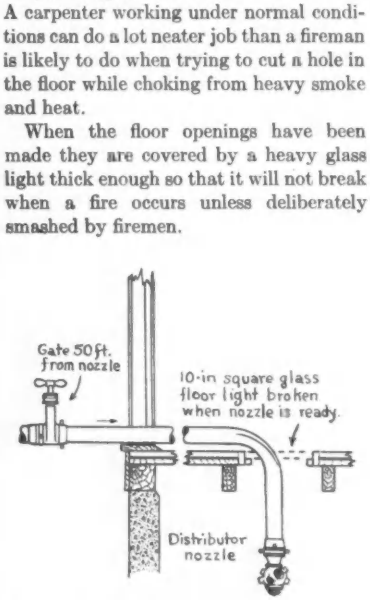
Percy Bugbee

Cellar Fires Need Not Be so Tough To Fight!

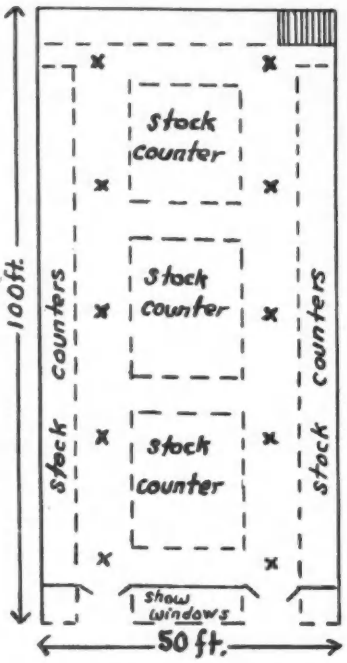
THERE is no common type of fire that regularly gives firemen more trouble than a cellar fire in an ordinary mercantile building. Often cellar fires occur when the store is closed and gain considerable headway before they are discovered by persons on the outside. When the firemen arrive heavy smoke has usually filled the main floor making it almost impossible to reach the stairs to the basement, which are likely to be located at the back of the store or some other inaccessible point. While firemen are trying to locate the fire beneath them by feeling for the hottest part of the floor, the flames are spreading to such an extent that the fire may get out of control. Sometimes by the time the fire can be reached the floor has become too weakened to permit firemen to remain inside the building. Frequently, even in large cities, cellar fires spread and involve entire buildings.

Fortunately, there is a simple measure that, if suggested by fire departments, would enable any merchant to prepare ahead of time for a cellar fire that may at some future time occur in his store. The suggestion is to have a carpenter cut the holes for the fire department cellar nozzles in advance. The holes are cut ten inches square and located along the aisles of the store at intervals of about every 20 or 25 feet, starting 10 feet inside the front doors. A carpenter working under normal conditions can do a lot neater job than a fireman is likely to do when trying to cut a hole in the floor while choking from heavy smoke and heat.

When the floor openings have been made they are covered by a heavy glass light thick enough so that it will not break when a fire occurs unless deliberately smashed by firemen.



The distributor nozzle, shown above, somewhat resembles a giant sprinkler head in its manner of performance. Water is thrown in all directions as the nozzle revolves with the flow of water.



Typical Store layout, X = location of glass lights for cellar nozzles.

WHEN a fire occurs, at which the fire department finds it necessary to use cellar nozzles, there will be less difficulty in locating the heart of the fire which is likely to be visible through one of the floor lights. The cellar pipe or distributor nozzle is made ready and the line is charged up to the shut-off gate which is always connected 50 feet back of the nozzle. Then the heavy floor light is smashed with a maul or with an axe if a maul is not available. Care should be taken not to get glass chips in the eyes. The reason for using the maul is to avoid dulling the pick of the axe.

As soon as the floor light is smashed the cellar pipe or distributor is operated in the usual fashion until the fire has been controlled sufficiently to permit overhauling and complete extinguishment at close range.

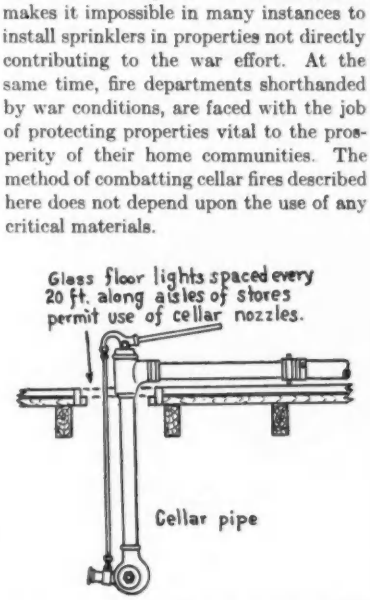
A number of communities have adopted ordinances requiring the installation of the glass floor lights in the main floor of stores. Where the basement partitions are so located as to obstruct the distribution of water from hose streams, additional floor lights would be required to give adequate coverage.

Several fire chiefs report that although their community has no formal ordinance requiring floor lights, they have many stores so equipped because merchants quickly saw the advantage of such an installation when the idea was suggested by the chief. One chief stated that only one merchant in his community refused his first request that floor lights be installed. Subsequently that merchant had a serious cellar fire and when repairs were made he put in more of the lights than the chief had first suggested.

In cases where the store has a linoleum or other similar floor covering over the wooden floor, red circles are placed above the floor lights to show firemen where they should open up to attack a fire.

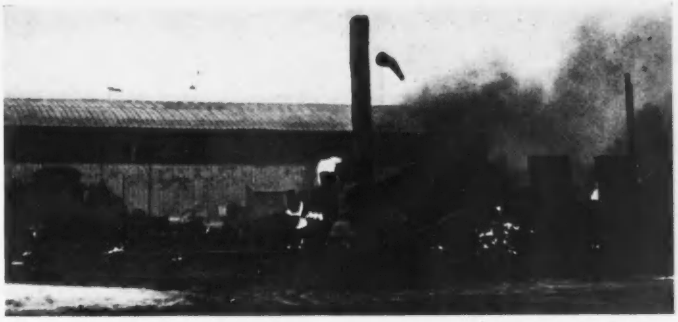
A small investment in labor and stock required to install these floor lights will at least make it unnecessary for firemen to chop numerous holes in the floor in the event of a cellar fire. In many cases this small improvement may easily prevent a total loss to an important local business structure that cannot be adequately replaced in wartime.

OBVIOUSLY, the ideal protection for mercantile establishments is to have complete automatic sprinkler protection, or at least to have basement areas protected by sprinklers. Sprinklers not only put water on the right spot but give an alarm as well. However, at the present time the shortage of critical materials makes it impossible in many instances to install sprinklers in properties not directly contributing to the war effort. At the same time, fire departments shorthanded by war conditions, are faced with the job of protecting properties vital to the prosperity of their home communities. The method of combatting cellar fires described here does not depend upon the use of any critical materials.



Cellar pipes are designed to throw one or two substantial streams, having a somewhat greater range than the distributor nozzle. The direction of the stream is controlled by a lever attached to the pipe.

AIRPORT FIRES HINDER THE WAR EFFORT



Flames destroyed a frame ironclad workshop and a hangar at the Cedar Rapids Airport when a spark from a welder's torch ignited the fuselage of a plane. The fire was not extinguished due to lack of fire fighting facilities.

THERE is hardly a local airport in the United States and Canada that does not make some contribution to the war effort. Many of the pilots now flying military planes received their first training at the home-town "field." Today these airports are bases for both training programs and civilian air patrols. Every effort should be made to protect such establishments from fire so that they may continue to render their vital service.

Unfortunately, many of the smaller airports are of combustible construction and almost without water supplies or other fire protection. The fires described on this page, all recently reported to the N.F.P.A., show the almost inevitable result when fire protection is neglected at an airport. As VOLUNTEER FIREMEN has reported previously, unless adequate private protection such as automatic sprinklers and hose equipment is provided, the typical airport fire is likely to be out of control before the nearest fire company can arrive.

Where it is known that fire protection at the local airport is inadequate, every precaution should be taken to eliminate causes of fires. Careless handling of flammable liquids and careless use of welding torches cause a large proportion of the fires reported from airports. At least, adequate first aid equipment of the proper types to cope with both flammable liquid fires and fires in ordinary combustibles should be at hand.

CEDAR RAPIDS, IOWA. Fire started in a frame workshop housing six planes when a spark from a welder's torch ignited the fabric of a plane fuselage. Employees had difficulty in escaping from the fast spreading fire and apparently no effort was made to use the meagre first aid fire equipment available.

A call was sent to the Cedar Rapids Fire Department which responded with a pumper. Chief E. O. Kohout reports that the airport was four miles from the nearest fire station. When the apparatus arrived the repair shop was completely involved. There were no water facilities available for fire fighting.

A hangar of ironclad construction 40 feet from the workshop contained sixteen additional planes. Four of these were removed but the management of the airport thought the planes safer, inside the hangar so the doors were closed and no more planes were removed. The radiated heat was so intense that the closed metal hangar was like an oven and the planes inside burst into flames. The planes and hangar were destroyed.

The total loss from this fire exceeded $60,000 including the destruction of 22 planes. The facilities of the airport had been leased for the government's civilian pilot-training program.

WINONA, MINN. A hangar and planes at the Max Conrad Flying School located four miles outside the city were destroyed in a fire started by ignition of gasoline in which plane parts were being washed. Hand chemicals proved ineffective on the fast spreading fire. The fire department sent a pumper but the steel-on-wooden frame structure was collapsing when the apparatus arrived. No water supply was available for fire fighting. The loss was estimated at $75,000 to planes and parts and $50,000 to buildings. Fire Chief H. G. Putnam, of Winona, comments that this building should have been protected by sprinklers with a water supply at adequate pressure.

HUNTINGTON, W. VA. An unsprinklered hangar of metal on wood frame construction at the Huntington-Chesapeake Airport was destroyed by a fire started when a plane was ignited by an acetylene torch being used by a repairman. Three other planes in the hangar were saved. Chief Brooks McClure reports that the entire hangar was on fire when the department arrived. As no water supply was available the fire department used its booster tank to protect surrounding buildings. Several trips had to be made two miles to the nearest hydrant for more water. The loss was $20,000 including damage to planes.

BEARDSTOWN, ILL. Fire Chief Roy S. Patterson reports a recent fire which destroyed a hangar and several planes at a local airport which was being used as a training station under a government contract. The fire started at 3.50 P.M., apparently due to ignition of escaping gasoline fumes when a 110-volt automatic lighting plant was operated. One of the mechanics jumped into his car and drove some distance to call the fire department, overlooking the phone at the airport. Other mechanics fought the fire with a small chemical extinguisher, rescued one new training plane and part of a dismantled trainer in the shop. Two other training planes were destroyed because of the speed with which the fire swept through the frame metal-clad hangar. The fire department responded with a pumper and used its 200-gallon booster tank but the fire was obviously beyond control.

Records of the present flying class were lost. These records were kept in an uninsulated metal cabinet which, of course, was not designed to protect records against any appreciable amount of fire. The loss was estimated at $3,000 to the hangar and $8,000 to contents.

MEADVILLE, PA. A hangar at the Port Meadville Airport was destroyed by fire when gasoline being used to clean an airplane motor was ignited by a nearby stove. The hangar was four miles outside of the city and the pumper company sent by Chief Charles Smalenberger found no water for suction. The loss was about $70,000.

MILES CITY, MONT. A Northwest Airlines office, eleven training planes and a hangar located two and a half miles from Miles City were totally destroyed by fire which broke out in the hangar. Employees were doping the wing of a plane and using an electric reflector to dry the dope. All the doors to the hangar were tightly closed. Due to the lack of ventilation hangar became filled with explosive fumes and a flash fire occurred spreading rapidly through the one-story concrete-walled structure.

The Miles City Fire Department responded to a telephone alarm with chemical apparatus and a 600-gallon pumper. Fire Chief George Aitchison reports that on the arrival of the fire fighters they found the entire building completely involved. There was no water supply available for fighting the flames. However, firemen did succeed in salvaging some important records from the office.

The loss to the building is estimated at $8,000 and loss to the contents at $13,000, exclusive of the loss to the training planes which has not been reported.

Windsor Apartment House fire in Everett, Washington.
View taken about a half hour after the alarm was received on the morning of January 21st.

When Buildings Are Not Fire Stopped!

Apartment House Blaze in Everett, Washington, Shows How a Big Fire Resulted Because Old Building Laws Did Not Require Cut-Offs to Retard Spread of Fire

PROPER building construction is of immeasurable importance to fire fighters. Experienced firemen are often more concerned as to whether floor and wall spaces are properly fire stopped than they are about whether the outside shell of a building happens to be mere wood "novelty siding" or more elegant "tapestry brick." Many important fire safety features have to be built into a building. That is why proper building regulations are a basic part of the fire protection program of any community from the smallest village to the largest cities. Fire safety features are seldom major factors in the cost of construction, but often when a fire occurs proper construction spells the difference between a trivial fire and a major loss.

Perhaps no more effective illustration of the importance of fire stopping as a structural detail could be obtained than an account of a fire which swept the Windsor Apartment House in Everett, Washington, on January 21, of this year. A report and accompanying photographs contributed by Fire Marshal Ray A. Gilbert, of the Everett Fire Department, show convincingly how failure to "fire stop" was responsible for a general alarm blaze.

Fire Marshal Gilbert points out that this fine-looking brick apartment house was built twenty years ago under an old building code that did not require fire stops. The building, three stories and basement in height, housed 32 apartments and covered an area 120 by 50 feet. Six pipe shafts of combustible construction extended upward through the building, opening into a combustible roof space averaging two feet in height and which extended over the entire building. But this roof space was not the only fire fighters' headache built into this structure. The ceiling for each floor was suspended a foot below the floor above. Thus an open air space of combustible construction extended throughout the entire building above each ceiling level.

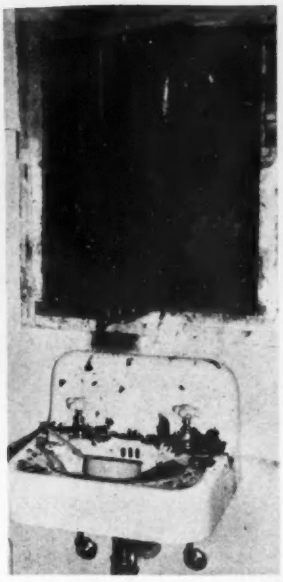
FORTUNATELY, the fire occurred in the daytime and did not involve loss of life. Smoke was discovered an hour and a half after a plumber had used a torch in a pipe shaft on the first floor. The fire department was called to investigate this smoke at 11:32 A.M. and dispatched a pumper and the chief's car. When firemen arrived they found that the fire had already extended into all wall areas above the main floor. While they were getting lines of hose into action the fire swept into the roof space over the entire building. A general alarm was immediately sounded bringing three 1,000-gallon pumpers, a pumper-ladder truck of 750-gallon per minute capacity, a 75-foot aerial ladder, and a squad truck with a monitor nozzle.

Adequate water supplies were available at good pressure and the fire department placed three pumpers in operation. Seven lines of 2½-inch hose and two lines of 1½-inch hose were used in attacking the blaze. The first operations were conducted almost entirely from inside the structure. The fire in the roof space was attacked through the ceiling of the top floor and through holes cut in the roof. Simultaneously, other crews opened walls and ceilings to extinguish fire in the concealed spaces. During the fire-fighting operations the sudden collapse of an overhanging cornice which was not adequately secured swept a fire captain from a ladder causing serious injuries and also breaking two ladders. As the roof began to collapse it became necessary to resort to heavy outside streams to control the fire.

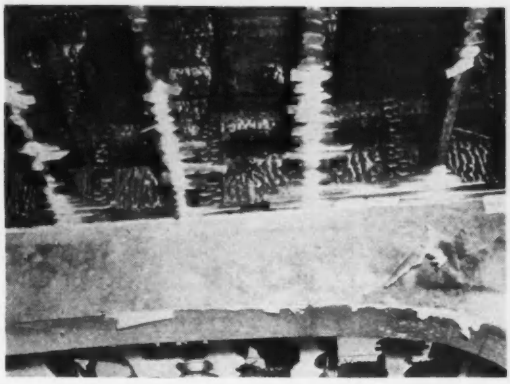
Before the fire was out 70 per cent of the building's value was destroyed. Contents losses were close to 40 per cent of their reported value. Good work in saving much of the contents was effected by U. S. Coast Guard personnel and auxiliary firemen.

FIRE Marshal Gilbert concludes his report with the observation that the City of Everett now has in operation a modern building code requiring fire stops in buildings. There can be little doubt that had the pipe shaft in which the fire started been of proper construction and cut off from other concealed spaces this fire would have been of a relatively minor nature. A typical modern building code would require that instead of the wood lath and plaster walls provided in the shafts of this Everett apartment house, shaft walls would be of materials adequate to retard the spread of fire for at least one hour. Properly constructed shafts have no openings not necessary for the purpose for which the shaft was built. Any necessary shaft openings must be protected with approved fire doors, fire shutters or windows as the situation may require.

HOW IT HAPPENED

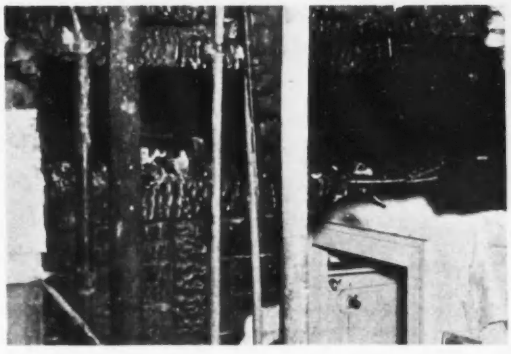


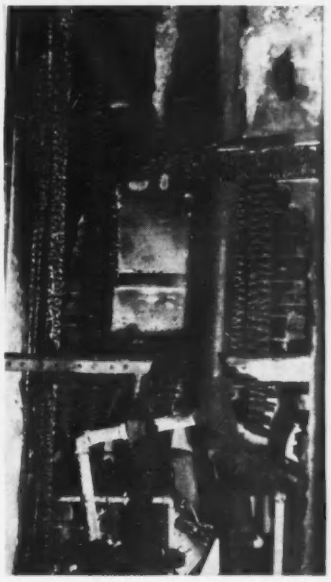
(*Above*). Here's where the fire started. To fix a stopped drain a plumber had used a torch on a leaded joint in the wall space behind the washbasin. Completing work about 10 A.M. the plumber left. About 11.30 A.M. the tenant returned, smelled smoke, and called the fire department to investigate. Upon arrival of the first apparatus a general alarm was sounded.



(*Above*). View of open construction of roof which covered the entire building (120 by 50 feet) without any fire breaks. The average height between the top floor ceiling and roof was two feet.

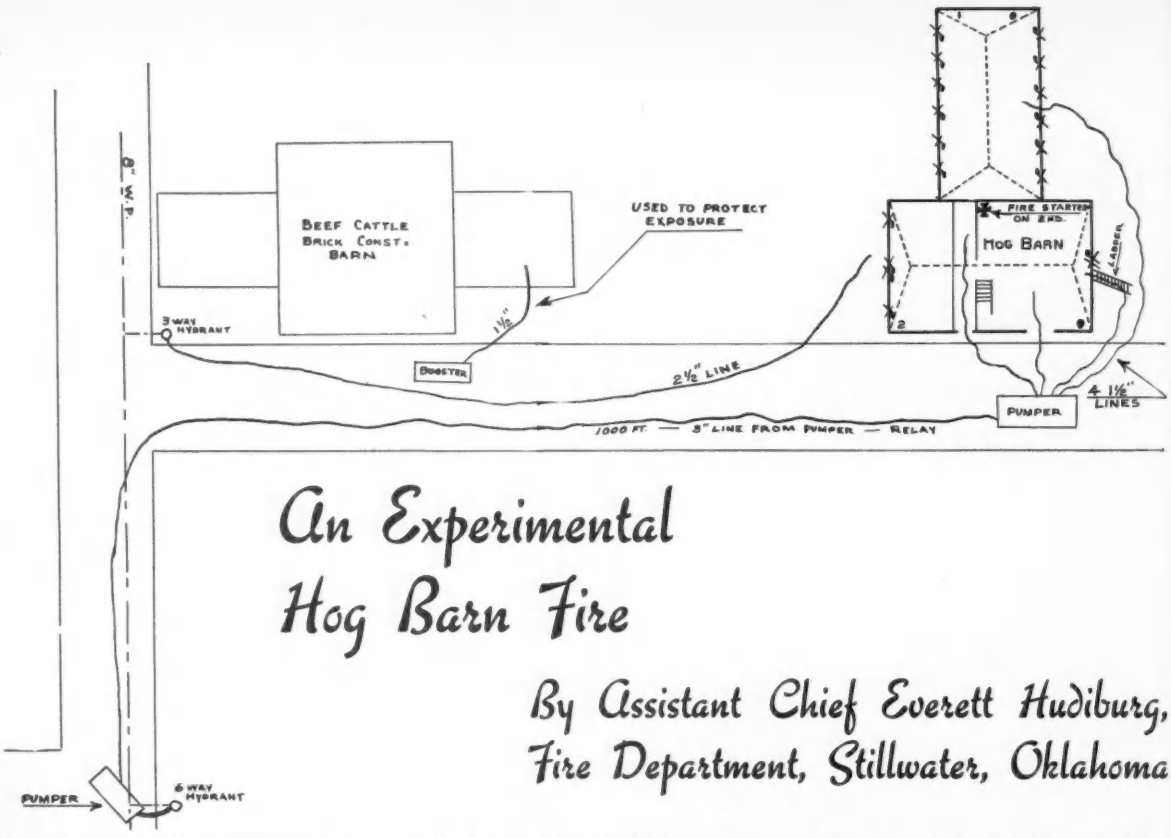
(*Below*). Between the floor and ceiling at each floor level was a concealed space, one foot high and without fire stops.





(*Above*). Typical of six pipe shafts or chases extending through the building to the roof space. These pipe shafts were without fire stops to prevent entrance of flames into concealed spaces. Walls were of wood lath and plaster. Before the fire department arrived, the fire had spread into all wall areas above the main floor. The flames gained great headway as tenants were unaware of the flames spreading through wall and floor spaces.

(*Below*) After the fire was out. Fire Marshal Ray A. Gilbert comments: "Considerable water damage was inflicted due to inability to reach fire areas within walls. Adequate fire stops would have centralized this fire and enabled the fire department to make an effective stop with a superficial loss." Instead the fire which started in a first-floor apartment spread upward and then horizontally, destroying half of the second floor and the entire third floor of the building. The loss was approximately $110,000.



An Experimental Hog Barn Fire

By Assistant Chief Everett Hudiburg,
Fire Department, Stillwater, Oklahoma

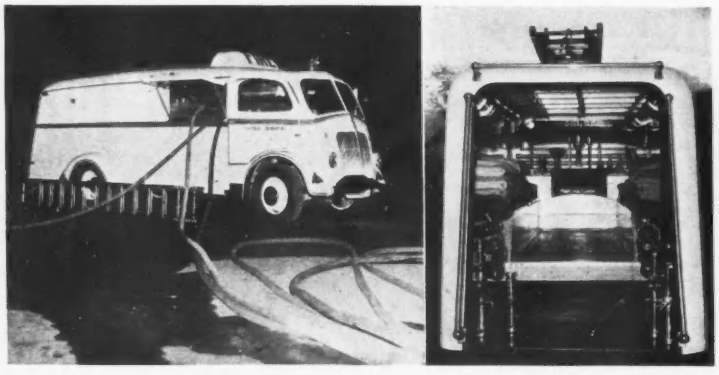
IT was early in the morning and five below zero. Some new employee was trying to thaw out frozen water pipes with a blow torch. We received a call for a fire in a barn where hogs are housed for experimental purposes at the Oklahoma A. & M. College.

We brought out a full assignment of equipment to the location. The squad company was the first to arrive and went into operation immediately with 1½-inch lines supplied from its 300-gallon booster tank. Upon arrival Engine No. 3 laid 1,000 feet of 3-inch hose to serve as a feeder line for the pumper of the squad company which supplied four 1½-inch lines. After laying this line Engine No. 3 used its booster line to protect a large beef cattle barn 200 feet south of the building involved. Upon arrival No. 2 engine laid a line from the nearest hydrant, which was on an 8-inch main. This line was the only 2½-inch line used on the main fire. This pumper immediately went back to the big six-way hydrant and connected up to give pumper pressure to the relay supplying the 1½-inch lines.

The hog barn had been almost completely involved upon the arrival of the first companies, but the fire was brought under control in fairly short order. Salvage operations were practically impossible due to the extent of the fire and the type of contents. By that time everyone was nearly frozen, so the off shift was called to finish the job of overhaul. Several tons of hay had to be removed and wet down. Many bales of straw bedding had to be broken open and the entire lot wet down to the last square foot. Spot fires all over the building had to be extinguished and it took until noon to get all the companies back to quarters and ready for further service.

Throughout the entire period of the fire every line had to be kept running to prevent freezing — which is something unusual for Oklahoma.

The Sketch above shows how we handled the situation. Like most fire-fighting operations it probably could have been improved. The entire rear wing was involved upon our arrival and consequently most of the attack was concentrated on the front portion of the two-story structure.



The Stillwater squad truck is a fully enclosed 600-gallon pumper with a 300-gallon water tank supplying three 1½-inch lines connected to a discharge manifold.

View from the rear ell of the barn showing the extent of the fire.

795

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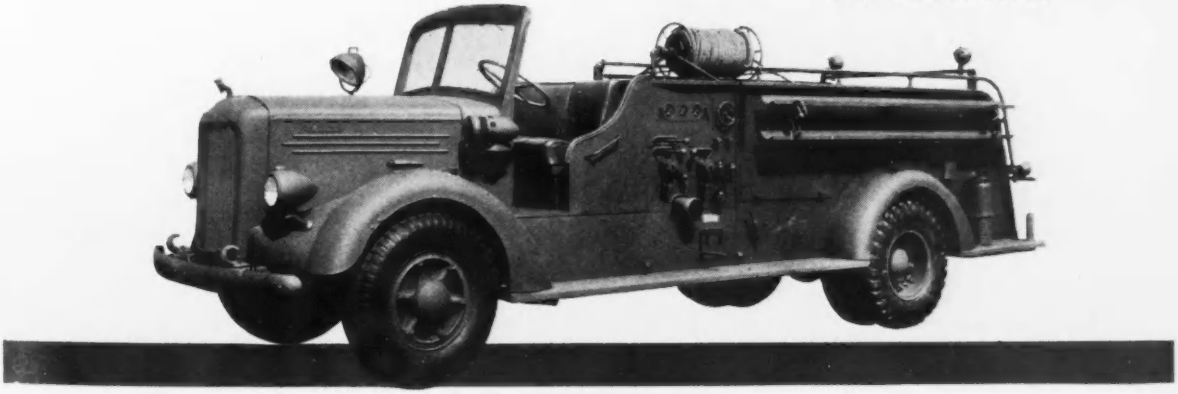

Here's a Mack type 80, 750-gallon triple combination pumper sold to Haddock Engineers, Ltd., for use at Camp Joseph J. Pendleton, Oceanside, California, Marine Training Center, the nation's largest military establishment, with an area of 141,000 acres.

Although we are working night and day to produce military equipment—we can also build and deliver highest quality Mack Fire Apparatus to communities which need it. 70 convenient direct factory branches offer a quick, low cost answer to any and all service problems.

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Understanding Fire

By Robert S. Moulton, Technical Secretary,
National Fire Protection Association

WHAT is fire? Why does it behave the way it does? When flames are roaring upward into the sky just what is happening? No doubt these are questions that from time to time come to the mind of every fire fighter. A little study of what fire is and how it behaves should help any fireman to do a better job at fire control.

To put the matter simply: burning is the combination of combustible materials with the oxygen in the air, releasing light and heat.* It is a rapid form of oxidation as compared with slower oxidation such as the process of rusting by which some metals slowly oxidize. In order to produce ignition of a combustible material its temperature must be raised to the point where rapid oxidation will start. The oxidation itself produces more heat and thus the fire spreads. However, if the heat is carried away from the point of ignition faster than it is produced, the temperature will be decreased and the fire will go out.

Heat is made up of two elements — temperature and quantity. In order to produce ignition, there must not only be a sufficiently high temperature, but there must be a sufficient quantity of heat. This is well illustrated by the flame of a match. This flame is hot enough to ignite most combustible materials, but the quantity of heat is relatively small. The flame of a match does not produce a sufficient quantity of heat to ignite a large log of wood, but a thousand matches burning together would probably furnish enough heat to ignite the log even if the temperature were no higher than that of the flame of a single match. In order to produce ignition of a combustible material its temperature must be raised to the point where oxidation will start and continue. The oxidation itself produces more heat and thus the fire spreads.

In the case of a log of wood heated by a match, ignition may start at the point where the match flame touches the wood. However, heat will be absorbed in the body of the log and some heat will be lost to the surrounding air.

As soon as the match flame is removed the transfer of heat from the point of ignition will remove the heat faster than it is produced and the fire will go out. If, however, a sufficient quantity of heat is applied to the entire log, the wood will be saturated with heat and the heat, therefore, cannot be conducted away from the burning surface; thus fire will continue.

* Scientists may criticise this and some other statements in this article as not theoretically complete and accurate. The author believes, however, that all the statements in this article are essentially correct for all practical purposes of fire fighting.

Even when subjected to ignition by a large quantity of heat with sufficient temperature to start combustion, a fire in a single log will often go out because of the rapid loss of heat.

If, on the other hand, two or three logs are placed close together the radiation from each will tend to keep the other hot and fire will readily continue. The same principles apply in the case of a fire in a hollow wooden partition. Fire in such a space with wooden surfaces on four sides, each side radiating heat to the others, produces a much more severe fire than a similar amount of wood surface exposed in an open room.

Where the size of the pieces of combustible material is small, there is very little absorbing capacity and a smaller quantity of heat will cause ignition. This is illustrated by the ready ignition by a single match flame of ordinary wood shavings. Where the combustible material is still more finely divided in the form of a dust cloud in the air, ignition can occur from an even smaller heat source. The same thing is true in the case of flammable gases and vapors, such as gasoline vapor, where the combustible material is divided into its individual molecules. This explains why a fine cloud of combustible dust or flammable gas or vapor can be ignited by an ignition source producing only a very small quantity of heat, such, for example, as a spark of static electricity or the sparks struck by a nail of a shoe striking against a concrete floor. Such sparks have high enough temperature to ignite any ordinary combustible material, but the quantity of heat produced in a small spark which lasts for only an instant is not sufficient to cause ignition except under very favorable conditions, such as presented by dust, gas or flammable vapors.

The ignition temperatures of ordinary combustible materials lie between 400 or 500° F. and 1000 or 1100° F. Many laboratory tests have been made to determine the exact ignition temperatures of wood, paper, coal, alcohol, gasoline and other common materials. These tests show considerable variation between different materials and also a variation in the ignition temperature of individual materials, depending upon the size of particles, the length of time the heat is applied, the type of laboratory apparatus in which the test is made and other factors. Information on the relative ignition temperatures of various materials will be found in technical handbooks, but this is of little practical concern to the firemen because all of the common combustible materials have ignition temperatures below the temperature of a match flame, a glowing cigarette or an electrical or mechanical spark. The major consideration is thus not the ignition temperature but the quantity of heat.

There are a few materials with abnormally low ignition temperatures which are of special concern. Carbon disulphide is a flammable liquid used in many industries and can be ignited at the temperature of ordinary steam pipes. Nitrocellulose materials, such as motion picture film and pyroxylin plastic (celluloid), will start to decompose at temperatures around 300° F., and will ignite themselves without further application of external heat. Some materials, such as phosphorus, sodium and potassium (in the presence of water), will ignite when exposed to air at ordinary room temperatures.

FOR his own safety in a burning building the fireman should know something about the nature of combustion. Ordinary combustible materials such as wood, composed principally of carbon and hydrogen, when burned completely produce carbon dioxide and water (steam), which are both relatively harmless unless they deplete the normal oxygen supply in the air or raise the temperature of the air so high as to be unsafe for breathing. However, when carbon or materials containing carbon burn in a restricted air supply, the carbon does not form carbon dioxide, CO_2, but carbon monoxide, CO, which is a poisonous and explosive gas, the well-known poisonous constituent of automobile exhaust gases.

There are also other more or less dangerous gases which may be produced in fires. Most combustible materials such as wood are broken down by heat to form combustible gases. The flame is the burning gas, and for the most part the actual combustion is that of the gases produced rather than the wood itself. Gases are often produced in fires under conditions where they do not completely burn, but accumulate in the building and flash or explode later when there is an additional air supply.

Various poisonous gases may be produced from the burning of stocks of leather, fur, woolen fabrics and all sorts of other materials commonly found in buildings, and wherever chemicals are involved in fires there is danger from the possible presence of fumes. Sulphur or compounds containing sulphur produce sulphur dioxide, which is a highly irritating and choking gas, but which luckily is so objectionable that there is little danger of anyone unknowingly breathing it in dangerous quantity, as there is in the case of carbon monoxide.

Firemen who understand the nature of fire gases appreciate the necessity for venti-

lation of burning buildings and the need for the use of gas masks or breathing apparatus when working in buildings heavily charged with smoke. There is no reason, however, why any fireman should hesitate to do his duty because of fire gases, because if proper precautions are taken the personal hazard can be reduced to the minimum.

A WORD about explosions. Explosions are of several kinds, but the kind of explosion which the fireman is most apt to meet is simply extremely rapid combustion, such as occurs when a flammable gas or dust is mixed with air and all burns within a fraction of a second. There is no sharp dividing line between a so-called flash fire and such an explosion. Another kind of explosion occurs in dynamite and other explosives which when detonated suddenly decompose and liberate large quantities of gases. Still another kind of explosion may occur when a liquid or gas is heated in a closed container with a progressive increase in pressure until the container lets go with sudden release of pressure. A boiler explosion is a typical example; such an explosion can occur in a closed tank of water (without a relief valve) just as well as with a flammable liquid.

Volunteer Firemen's Forum To Meet in Chicago in May

THE fourth annual Volunteer Firemen's Forum is to be held in Chicago, Tu sday morning, May 11th, as a part of the Forty-seventh N.F.P.A. Annual Meeting, which will be held at the Palmer House, May 10–13. The Forum this year will be under the chairmanship of N.F.P.A. Vice-President Richard E. Vernor, Manager, Fire Prevention Department of the Western Actuarial Bureau. "Dick" Vernor is well known to firemen as co-sponsor of the Memphis Fire Department Instructors Conference. It is expected that he will have Chief Harry E. (Smoky) Rogers with him to help make the Forum this year a memorable one for the volunteer firemen who attend.

All volunteer firemen who can get to Chicago on the morning of May 11th are invited to attend the meeting. A complete program for the entire annual meeting will be mailed to all member fire departments with the April N.F.P.A. News Letter. In addition to the Volunteer Firemen's Forum there will be many other features of interest to fire fighters, both volunteer and paid. The entire four-day program will be one devoted to wartime fire protection with outstanding experts on hand to give the members up-to-the-minute information on new developments.

As in former years, one of the outstanding attractions of the annual meeting is expected to be the program of the Committee on Visual Education devoted to the latest motion pictures on fire protection subjects.

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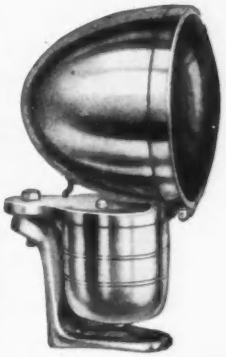

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Using small rechargeable battery. For the men. 25,000 c.p. beam.

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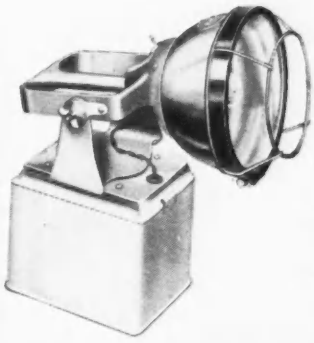

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MEMBERSHIP REPORT

N. F. P. A. Volunteer Firemen's Section

EACH MONTH the editors of VOLUNTEER FIREMEN report the status of the membership of the N.F.P.A. Volunteer Firemen's Section. We do this because the magazine is the official organ of the Section. It is through the steady growth in the Section's membership that improvements in the magazine, such as the heavier cover and additional pages incorporated in this issue, are made possible.

At the present time 774 volunteer fire departments and industrial fire brigades belong to the Section. The nine fire departments listed below are welcomed this month as new members. One hundred and eighty-two firemen enrolled in these companies bring the number of individual fire fighters in the Section to 15,392:

Northfield Volunteer Fire Department, Northfield, Illinois.

Violetville Volunteer Fire Department, Inc , Violetville, Maryland.

Budd Lake Volunteer Fire Department, Budd Lake, New Jersey.

Rumson Fire Company, Rumson, New Jersey.

Auxiliary Fire Corps Engine No. 26, Buffalo, New York.

Bendix Aviation Corporation, Eclipse Machine Division, Elmira, New York.

Shiloh Fire Department, Dayton, Ohio.

J. E. DuBois Hose Company No. 3, DuBois, Pennsylvania.

Stamford Volunteer Firemen's Association, Stamford Centre, Ontario.

We hope that our members will lose no opportunity to recommend VOLUNTEER FIREMEN to other fire companies that might like to become N.F.P.A. members. The membership plan is explained in the next column.

Every member receives a handsome membership certificate illustrating the history of fire protection.

MEMBERSHIP PLAN

- Through the Volunteer Firemen's Section, fire companies may become N.F.P.A. members. Each member fire company is entitled to have VOLUNTEER FIREMEN magazine sent to the homes of ten firemen.
- As a member, the fire company receives at headquarters a set of all other regular N.F.P.A. publications. This includes the QUARTERLY MAGAZINE and monthly NEWS LETTER.
- Membership in the National Fire Protection Association costs ten dollars per year. If more than ten firemen want to receive the magazine, an additional one dollar should be sent for each fireman in excess of the first ten enrolled.

Cartoon by Henry Boltinoff. Courtesy of *Collier's* magazine.

A Spring Clean-Up Campaign To Cut Needless Fire Calls

CHIEF Carl G. R. Peterson of the Trumbull Volunteer Fire Company of Trumbull, Connecticut, writes that his department is conducting a Spring Clean-Up Campaign to educate numerous new residents in the town of the importance of care of rubbish and control of woodland fire hazards.

Chief Peterson also makes the following interesting observations regarding the Spring grass and brush fire season: "As the Spring season approaches, we face our usual run of grass and brush fires, and due to a great many of the boys being in the armed service we are also confronted with a manpower shortage. A great many of the men available during the day are working on night shifts and naturally want to get some sleep during the day instead of chasing grass fires day after day. Sometimes we get as many as three or four calls in an hour. It does not take long to get these fires under control and out but it is trying on the nerves and disposition of the men." He concludes his letter with a note of thanks for "the good work you are doing with VOLUNTEER FIREMEN and the other publications."

IF your department has not already conducted a Spring Clean-Up Campaign, the months of April or May give an excellent opportunity for this worthwhile activity. The purpose of the campaign is to clean up the community just as each housewife cleans house in the Springtime. There is no set time on a nation-wide basis for holding a clean-up week but it can be fitted into the local civic calendar at the most logical and convenient time.

Cleaning up the community is a worthwhile activity and an important local contribution to the war effort. Cleanliness prevents fires, sickness, and decay; all of which are enemies of war production. You can make a real contribution to Victory by urging householders and business men to turn in all scrap metal and scrap rubber to the local salvage committee or to sell it to dealers.

As in past years the National Fire Protection Association is sending to all members a Fire Prevention Clean-Up Campaign Bulletin suggesting various activities for a Clean-Up Week. A timely, strikingly colored poster has also been prepared by the N.F.P.A. for general distribution. Sample copies are available on request with quantities at $1.50 per 100 or $10 per 1,000.

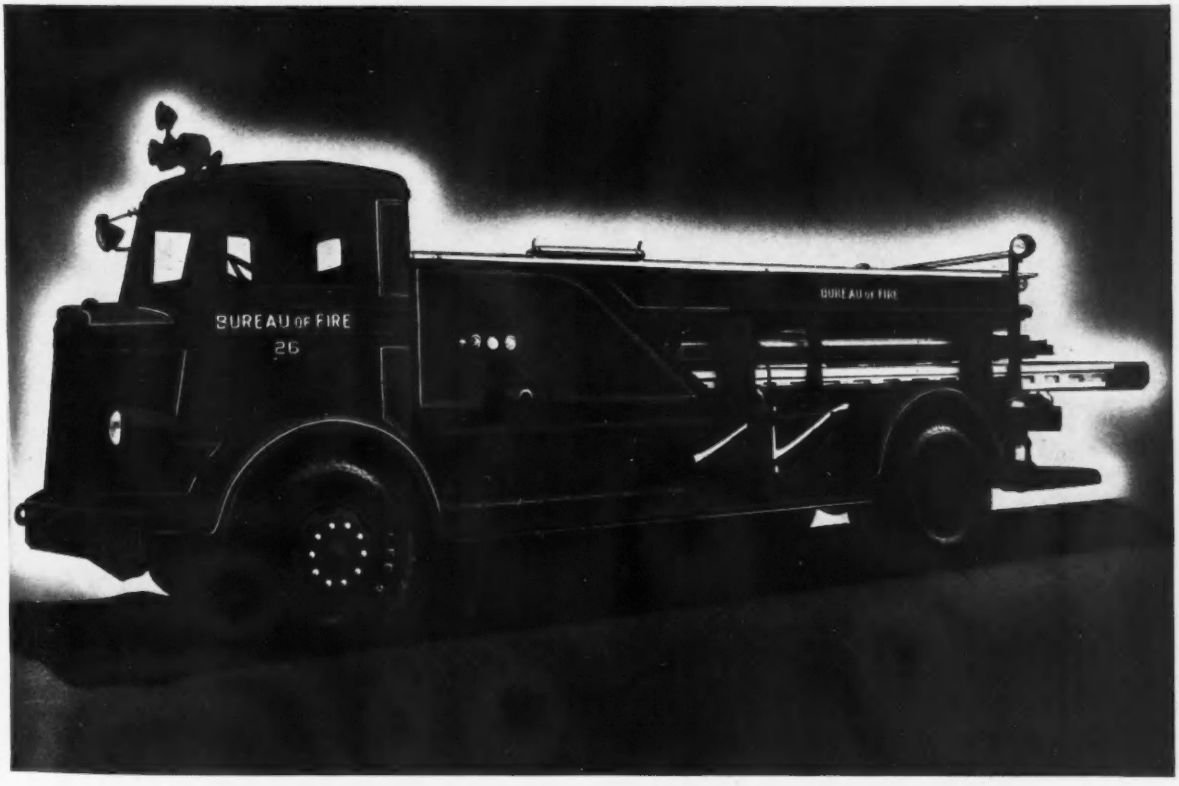
Persons desiring further assistance in organizing a local campaign should write direct to T. Alfred Fleming, Chairman, N.F.P.A. Committee on Fire Prevention and Clean-Up Campaign, 85 John Street, New York City. Mr. Fleming would also like to receive a full report as to the success of each local campaign along with copies of newspaper articles, prize essays and winning posters.

IN THIS WORLD AFIRE . . .
WITH A WAR OF MACHINES AND MEN

● Ward LaFrance is devoting its production resources to making huge ten-ton Tank-Recovery Wrecker units and Pumpers for the Army and Navy. Our many years of experience in turning out fire apparatus, engineered to the highest standard of ruggedness, now serve us well when we are called upon to build equipment so necessary in the conduct of this war.

Ward LaFrance fire apparatus is still being manufactured in limited quantities for civilian service and can be supplied, if your needs are urgent.

Write us for detailed information and advice about specially engineered Ward LaFrance apparatus for your department. We shall be happy to cooperate with you in every way.



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THE EMERSON RESUSCITATOR

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Provides three-fold protection against asphyxial deaths from smoke suffocation, drowning, electric shock and other causes. May be operated as a fully automatic self-adjusting breathing machine, or as an inhalator, or for the aspiration of froth, mucus or other secretions from the victim's throat. In use by hundreds of fire departments and leading hospitals throughout the United States.

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Devices for Administering Oxygen are Vital to Fire Department Rescue Work

THROUGH many years of experience with rescue work, including the task of reviving persons overcome by smoke or gases, the firemen of almost every community are usually among the first called upon for help in any accident in which breathing has been interrupted. Such accidents include, in addition to persons overcome by smoke and gases, cases of immersion or electrical shock as well as sickness which has impaired breathing. In many such cases the victim will soon die of lack of air unless prompt methods are effectively employed to restore respiration.

In most fire departments standard first-aid training is an essential part of the fire department training program. Firemen are expected, for example, to be proficient in the use of the prone pressure method of artificial respiration. But in many cases artificial respiration alone is not enough to save a patient's life. Persons whose lungs and blood are starved for air need higher concentrations of oxygen than is found in atmosphere we breathe. For this reason special life-saving equipments known as inhalators and resuscitators are part of the standard appliances of well-equipped fire departments. These devices permit the rescue workers to administer a carefully controlled mixture of oxygen and carbon dioxide to victims of any accident or illness which affects breathing. One might suppose that pure oxygen would be the ideal gas to use, but scientific research has proved that a small percentage of carbon dioxide, when added to the oxygen, acts as a respiratory stimulant.

MANY fire departments can point with pride to men, women, and children in their communities that would not be alive but for the work of the fire department with its resuscitating equipment.

This article does not attempt to give specific instructions regarding the operation of inhalators and resuscitators, because successful operation obviously depends upon following the manufacturers' instructions. It is intended, however, to point out the importance of having firemen familiar with such equipment. It may save their own lives when overcome by smoke.

In many communities where the fire department budget is too lean to include such essential life-saving apparatus, civic organizations have purchased the equipment with the understanding that it is to be operated by the fire department for the benefit of the entire community.

The inhalator is designed for use in conjunction with the prone pressure method of artificial respiration in the event a victim is unconscious. As the patient returns to consciousness the artificial respiration is discontinued and the person breathes in the oxygen from the face piece naturally. Both inhalators and resuscitators are provided with face pieces suitable for use on adults and children, as well as other instruments, such as tongue clamps, necessary when reviving unconscious persons. It is, of course, important that the victim's mouth be freed of all foreign matter, such as chewing gum, before attempting resuscitation.

A typical fire department inhalator

A RESUSCITATOR resembles an inhalator and may be used as such, but has certain other features. It is automatic in operation and may be used to supply the oxygen to unconscious persons without the use of artificial respiration. This is important in the case of injured persons, as well as many women and infants, because strenuous artificial respiration given by some husky rescue worker might aggravate the injuries. Resuscitators automatically adjust to the breathing cycle of the patient, depending upon the patient's lung capacity. If an obstruction occurs in the patient's air passages, an audible signal warns the operator. By operating a switch, the resuscitator may be made to produce a continuous gentle suction which withdraws mucus into a bottle or trap through an entirely separate mechanism. When a patient has been sufficiently revived so that the automatic operation of forcing the oxygen mixture into the patient's lungs is no longer needed, the resuscitator is operated as an inhalator to supply oxygen at the patient's breathing rate as long as needed.

Both inhalators and resuscitators are designed with equipment to care for either one or two victims simultaneously. As with gas masks, it is important that the instruments and face pieces be thoroughly cleaned after each use.

NEW SQUEEZ-GRIP

Heretofore, time and gas were wasted when using a hand-wheel type valve for carbon dioxide extinguishers. Hence, for All-Out action against fire a fast and a gas saving type of release was required; an extinguisher that could be controlled while being carried . . . without the delaying time incident to setting a cylinder down to open or close the hand-wheel; a valve that would release the gas just as quickly as it could be shut off. The new C-O-TWO Squeez-Grip valve combines all these requirements.

SQUEEZ-GRIP IS A SENSATIONAL NEW RELEASE

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C-O-TWO is listed by the Underwriters' Laboratories; fully approved by Factory Mutuals and the Bureau of Marine Inspection and Navigation. C-O-TWO is a registered trademark. To be safe specify C-O-TWO.

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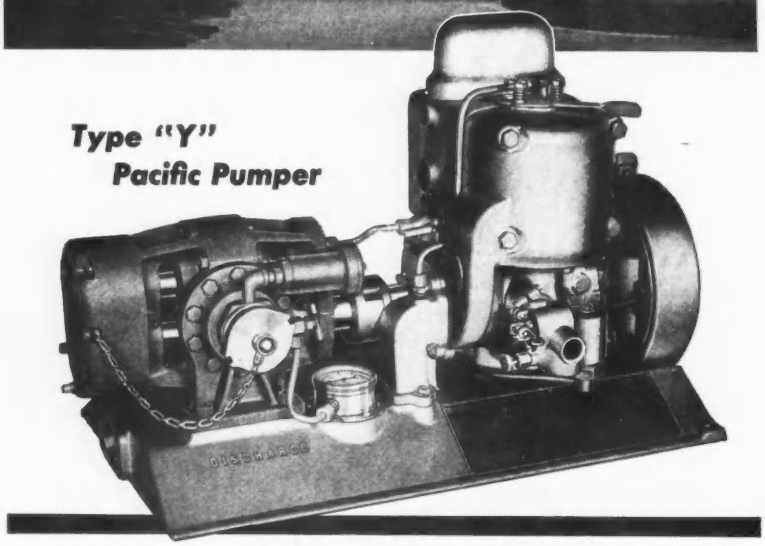

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NAME.....

STREET.....

CITY AND STATE.....

Aged Pensioners Die in Sanitarium Blaze

THE destruction of the Forest Park Sanitarium located outside of Seattle, Washington, with a loss of 32 lives, on the last day of January, was not only one of the outstanding institutional fire disasters of recent years but was also a warning as to what may be expected in many similar establishments throughout the United States.

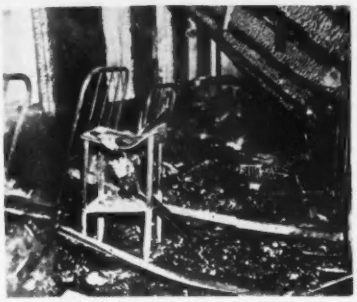
The sanitarium was operated as a rest home for aged pensioners and mental cases. It is said to have contained 49 patients when the fire broke out as a workman struck a match to test an oil heater he had been installing. The head of the match flew off and ignited oil spilled on the floor. The fire swept through the two-story wooden structure so rapidly that few of the occupants escaped death or injury.

That this is not an isolated instance is evident from the fact that slightly over a year before, two similar institutions in New York State, the Amityville Sanitarium and the Riverview Convalescent Home, were destroyed by fires which took a total of 15 lives.

Captain Stephen E. Sanislo, Safety Education Director of the Seattle Fire Department reports that there are approximately 50 such institutions outside of the city limits of Seattle. Old farmhouses, which would not comply with municipal regulations covering institutional fire safety, are used to house persons receiving old age pensions from the Government. Similar conditions exist throughout the country, as aged persons who are unable to care for themselves go to similar homes maintained largely for pensioners.

THESE institutions, however, are not entirely confined to rural areas. In many cities large old dwellings or former mansions, that in recent years have been a tax liability to their owners, have been utilized as homes for aged pensioners. Most of these structures have combustible interior construction, open stairways, inadequate exits and little or no fire protec-

Flames sweeping through the 2-story wooden Forest Park Sanitarium near Seattle took the lives of 32 inmates.



International

Ruins of one of the crowded bedrooms in the ruined sanitarium. Due to the swift spread of the flames many of the aged victims never escaped from their beds.

tion or alarm facilities. Very frequently the number of attendants on duty is entirely inadequate to remove the patients to safety in the event of fire. Beds or cots are crowded even into attic areas. Basements are found crowded with rubbish or needless storage. Heating equipment is often in a deteriorated condition.

Unless every fire department makes an effort to check on the safety features of such establishments in their territory more tragedies such as that near Seattle are almost inevitable. Responsibility for fire safety cannot be left to chance. Routine inspections made by welfare agencies are usually of little value to insure fire safety, as few welfare investigators have even rudimentary knowledge of the principles of fire protection.

The N.F.P.A. Building Exits Code, the recognized life safety standard contains a section devoted to safety from fire in hospitals, sanitariums, and corrective institutions. The code does not permit new institutions of these types to be housed in frame buildings of more than one story in height. Existing institutions in frame buildings not exceeding 7,500 square feet in area may be occupied in the two lower floors (but not in basements) when provided with automatic sprinkler protection. All sanitariums are required to have adequate exits, alarm facilities, and fire-extinguishing facilities under this advisory code.

IF proof were needed that the tragedy in the Forest Park Sanatarium was not an isolated case, it is to be found in the fact that less than two weeks later a similar fire tragedy occurred in B. K. Gravelle convalescent home at Sioux Falls, South Dakota.

According to Fire Chief Carl E. Hunt fire started in the basement of this 2½-story frame dwelling, apparently when clothing, dropped down an open clothes chute from the second floor, came in contact with a furnace smoke pipe. Discovered in the evening the fire was promptly extinguished, by the fire department with chemical lines, but seven aged inmates lost their lives due to suffocation before help could reach them.

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(Bulletin 75V)

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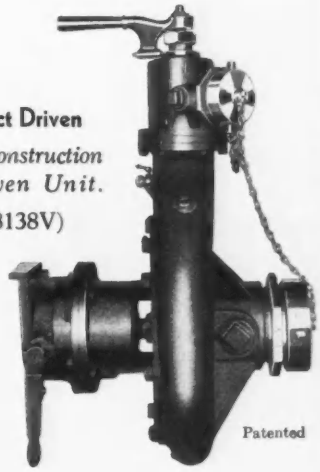

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Foille's record of performance in fire-department service is founded on *results!* Foille eases pain—shortens the recovery time of the injured firefighter—gets him back on duty sooner. Simple to use, Foille is applied directly to the injury—nothing to mix or prepare—and does not require removal by the physician when treatment is continued. Light in consistency, water-soluble, free-flowing, Foille may be applied by sponge, brush or spray gun; is furnished in tubes and bottles for first aid kits, and bulk containers for hospital service. Write for the facts!

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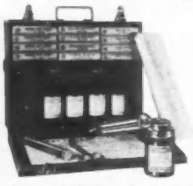

Contains a liberal supply of Foille for Burns, in jars which connect direct to efficient spray gun* for fast application—together with unit-packaged First Aid dressings and accessories, including sterilized muslin sheet. Strongly-cased for long service. Bulletin No. FA-73.

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MINE SAFETY APPLIANCES CO.
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International
Due to efficient fire drills 1,200 mental patients were safely removed when fire destroyed the Evansville State Hospital for the Insane at Evansville, Indiana. Two attendants lost their lives.

1200 Mental Patients Are Saved from Hospital Fire

THERE are few places where fire introduces a greater element of terror than in an institution devoted to the care of mental patients. About 2 A.M. on the morning of February 9th, a matron on duty in the Evansville State Hospital for the Insane at Evansville, Indiana, discovered a fire. Hospital attendants concentrated on removing the 1,200 patients and apparently forgot to call the fire department until 2.32 A.M.

The fire department, under Chief Alex Houghland, responded with five pumpers and two ladder trucks and placed a maximum of seven streams in operation. Limited private water supplies and long lines of hose seriously handicapped firefighting operations. Nevertheless the fire department succeeded in saving several seriously exposed buildings. Much credit for the good fire fighting is due to the fact that the fire department had made frequent inspections at the institution and planned their work in advance. Special attention had been given to the deficiency of the water supplies and arrangements were made for the fire department to supply water to the private mains by connecting a 5-inch suction hose between a public hydrant and a reverse hydrant which connected to the private system through 2,000 feet of 4 and 6-inch main. Additional water was obtained by taking suction from a pond 600 feet distant.

The central unit of the hospital consisted of a huge unsprinklered structure three stories in height, having brick walls and wooden mill-type interior construction. At the center of the building was a large open rotunda about 85 feet high. The six wings of the structure opened into this rotunda without fire doors and other cut-offs to check the spread of fire. Above each of the wings was an open attic space into which ventilating ducts extended. Four wings were occupied as wards for patients, one was the administration section, and one contained the dining rooms and employees' quarters.

The fire started in the center of the employees' wing and quickly swept into the rotunda and from there spread to the other wings. The cause of the fire is unknown although defective wiring is suspected.

A remarkable feature of this fire was the saving of the lives of all of the mental patients. This brings forcibly to attention the importance of frequent exit or fire drills in institutions of this nature. Under the superintendent's instructions, almost daily evacuation drills were conducted for patients when leaving their wards for outdoor recreation. This proved to have been the equivalent of fire drills. When the emergency arose there was little panic. However, two hospital attendants lost their lives, presumably they returned to the burning structure.

It is considered fortunate by the Indiana Inspection Bureau which issued a report on this fire, that the fire originated in the upper part of the building and burned downward. Had it originated in the basement or first floor of the same area, the saving of patients, although well drilled, would have proved much more difficult.

Only an automatic sprinkler system could have made an institutional structure of this nature reasonably safe from fire. Until last year a private fire brigade was maintained to man the institution's private fire fighting equipment but due to changes in personnel resulting from the war, the brigade had been disbanded.

With 5-gallon tank slung on his back, operator can move about quickly in fighting the fire. No need to stop and pick up the extinguisher. Arms are left free for climbing ladders, etc.

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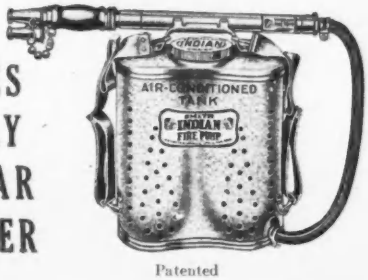

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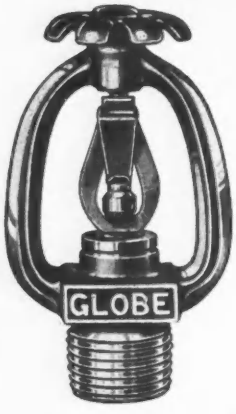

Automatic Sprinklers

THE FIREMAN'S BEST FRIEND

Every time a building is equipped with automatic sprinklers, the fire department takes one more serious fire hazard off its list. Even the individual fireman benefits, for he is much less likely to be injured or killed when he enters a sprinklered building in answer to a fire alarm. In all probability the fire will have been extinguished by the sprinklers. Sprinklered buildings in congested districts are looked upon by fire department officials as effective conflagration barriers.

BEAT FIRE TO THE ATTACK

Annually, as soon as the danger of freezing weather is past, a special Inspection of sprinkler systems should be made. You should know the extent of the protection, the location and arrangement of control valves and connections for fire department use at the time of fire. Adequate knowledge of the sprinkler equipment will materially aid you in performing your duties with efficiency. Advise the owners of sprinklered property that at this time cold weather valves should be opened. Dry pipe valves should be opened, thoroughly cleaned, carefully serviced, and properly reset. Electric and water-motor flow alarms should be tested.

GLOBE AUTOMATIC SPRINKLER COMPANY

2035 WASHINGTON AVENUE, PHILADELPHIA, PA.

SALES AND ENGINEERING OFFICES IN PRINCIPAL CITIES

Safeguarding Abandoned Gasoline Tanks

FIRE departments in many sections of the United States have been faced with the problem of safeguarding gasoline storage tanks that have been abandoned due to gasoline rationing and shortages of petroleum products.

Recently Fire Chief George E. Jacob, of Canton, Ohio, wrote to the N.F.P.A. discussing methods of safeguarding abandoned gasoline tanks. He stated: "It has been our policy to have all empty gasoline storage tanks at abandoned filling stations filled with water. I am wondering if the same results could not be obtained by sealing all the openings and vents on a tank and then placing 'dry ice' (carbon dioxide) or carbon tetrachloride in same, thus creating sufficient inert gas to eliminate an explosion."

N.F.P.A. Technical Secretary Robert S. Moulton replied as follows: "Acknowledging your letter, I think that probably the most practicable method of taking care of empty gasoline storage tanks at abandoned filling stations is to fill them with water. Better still is the Los Angeles practice of filling them with concrete. This, of course, prevents any possibility of further use.

"Theoretically the atmosphere in the tank could be made inert by the introduction of carbon dioxide, but I do not know how permanent this treatment would be. Carbon dioxide is used to a considerable extent in tanks which are to be repaired to prevent ignition from welding and other repair operations. As for filling tanks with carbon dioxide and expecting it to last for a period of years, I have no way of knowing whether the carbon dioxide would remain in the tank for a long period.

"Answering specifically your question about the amount of dry ice to make the atmosphere inert, about three pounds of dry ice, after evaporation, would prevent an explosion of a 500-gallon tank. This is not sufficient to displace all the air in the tank; it is merely enough to prevent an explosion. Around eight pounds would be required to displace all the air. It would be necessary to exercise a little care in sealing the tank after the introduction of the dry ice as the evaporation of the carbon dioxide would cause an internal pressure that might make some trouble if there were no way for the gas and air to escape.

"A similar result could be obtained with carbon tetrachloride. About a pint of carbon tetrachloride completely vaporized should theoretically prevent an explosion in a 500-gallon tank. Two gallons would be needed to displace all the air. Carbon tetrachloride, however, would not, in my opinion, be at all satisfactory for your use. The reason for this is that there is very apt to be a little water in the bottom of gasoline tanks. The carbon tetrachloride in contact with water over a long period of time will form a certain amount of hydrochloric acid which is corrosive and might eat holes through the tank."

MIDWESTERN FIREMEN'S CLOTHING

Protects Those Who Protect Our Vitals

YES! WE CAN EQUIP YOU FOR YOUR HAZARDOUS JOB of PROTECTING LIFE and PROPERTY AGAINST FIRE

Some of our customers have gathered the impression that due to the war, needed protective clothing for municipal firemen cannot be purchased. Naturally, the needs of those who protect our war vitals come first. The War Production Board has advised us that there is a definite need for protective clothing to be worn by firemen at the scene of operation. Therefore, we are able to ship many items frequently with little or no delay. However, we urge that these needed garments be ordered as far in advance as possible.

★ MIDWESTERN SAFETY COATS

Midwestern's famous life protecting yellow striped coat — far more easily seen when visibility is poor. Still available, although Midwestern is equipping the fire fighters of the war. Write us for full descriptions, catalog, and samples of fabrics.

MIDWESTERN COMBINATION SUIT

Detachable Lining

Rubberized coat and Bunker Pants with detachable wool linings. Flexible elastic inner sleeve for wrist keeps out water, cold and sparks. Wool lining can be added to any Midwestern fire coat at small additional cost. Snap buttons make it easy to attach and detach quickly.

BUNKER PANTS

Bunker Pants equipped with removable wool lining, sturdy construction, reinforced crotch for pole sliding. These pants together with coat as illustrated at left is Midwestern's combination suit No. 101.

See your local Midwestern representative or distributor, or write directly for complete literature, including prices, material samples and deliveries.

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employ no critical materials, so are available promptly in two weights and in the two styles shown, with safety "cushion lining" that absorbs shocks.

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DUGAS ENGINEERING CORPORATION
Marinette Wisconsin

TRADE ANNOUNCEMENTS

A line of water spray nozzles for fire-protection purposes has been placed on the market by Walter Cooling Corp., 71 Nassau St., New York. These nozzles, known as "Fogjet" nozzles, are available in both high velocity and low velocity models. The high velocity model is designed to fit any 1½-inch male National Standard Thread hose connection while the low velocity model has 1-inch or 1½-inch standard pipe thread for mounting on a portable applicator pipe. Further details are available from the manufacturer. Ask for catalogue sheet No. 18.

●

Live electrical wires may be safely cut by means of the Longrange Cutter recently introduced by American-LaFrance-Foamite Corp. of Elmira, N. Y. The Longrange Cutter is designed to permit remote control of the cutting blade thereby allowing the operator to stand clear from falling wires after they have been cut. Two four-foot sections of insulation-tested Douglas Fir or Spruce comprise the handle and the cutting action is controlled by an insulation-tested cord. If the jaw should be burned due to cutting a live conductor the blade may be replaced in 30 seconds.

●

The H-H Inhalator manufactured by Mine Safety Appliances Co. of Pittsburgh, Pa., is described in an attractive bulletin issued by the manufacturer. This leaflet, known as Bulletin No. CA-9 is copiously illustrated and describes not only the inhalator itself but also the various alternate assemblies and accessories which are available for use with it. Write the manufacturer for your copy of Bulletin No. CA-9.

●

An attractive and useful booklet entitled "How to Lengthen the Life of Mechanical Rubber Goods" has been published by Pioneer Rubber Mills, 353 Sacramento St., San Francisco. The booklet contains practical pictures and explanations of proven ways to increase service from rubber belting, fire hose, and other mechanical rubber products. While directed primarily to American industry, firemen will find the references to fire hose and couplings of interest. A copy of the booklet will be sent on request to the Pioneer Rubber Mills.

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WHEN VICTORY IS WON

FYR-FYTER WILL HAVE AN ENLARGED AND IMPROVED LINE

We are hitting the Axis with all we've got. Consequently, there are no Fyr-Fyters available for civilian use except on the highest priority ratings. When the story of Victory is written, our enlarged manufacturing facilities will again be devoted to the production of Fyr-Fyter Extinguishers for civilian fire protection.

We are old hands at converting from war-time to peace-time production. We served the government in World War I and when the Armistice was signed we immediately began to produce for civilian use. We promise that this performance will be repeated.

REMEMBER FYR-FYTER

In the meantime, remember our name. You will have obsolete, worn-out equipment you will want to replace as soon as we are in full civilian production again. We will be happy to serve you.

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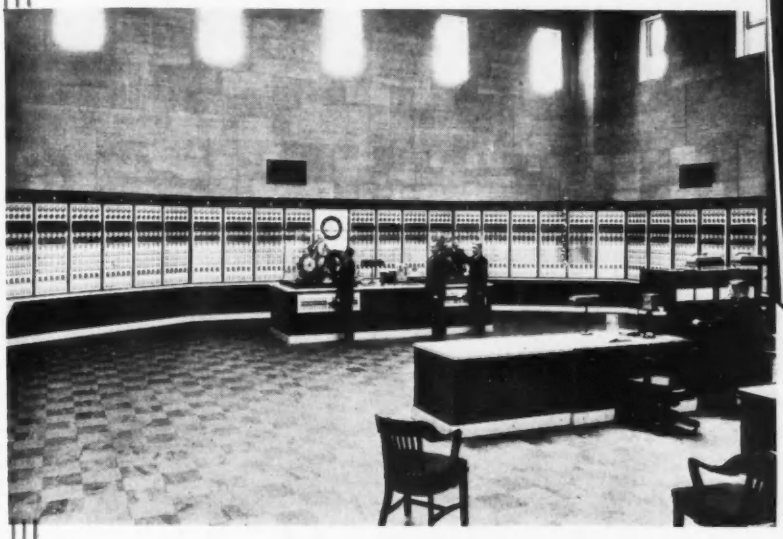
NO ACTION
till box is pulled!



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One of the largest and most efficiently designed fire alarm control rooms in the world with operators constantly on duty to receive and transmit alarms of fire to the fire fighting forces, and a magnificent array of modern fire extinguishing equipment, but—there is no action until an alarm is given and the location of fire determined. Not until then is the fire department energized. The effectiveness of the municipal fire defenses is limited to the adequacy of the means employed for sending alarms.

Inadequate box distribution causes delay, confusion, fire waste and the consequent impairment of national resources. When fires occur the distance to the nearest fire alarm box is a matter of vital consequence — 300 feet in mercantile and manufacturing districts and 500 feet in residential districts are the recognized maximums for safety. The U. S. Chamber of Commerce is responsible for the assertion. — ***"There is practically no City where there are enough fire alarm boxes!"***

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Men of AMERICAN-LAFRANCE are working 'round the clock for a victory that will insure his freedom of choice.

THAT look of admiration for his father's fire engine is a heritage from grandfather's day. For grandfather too, looked with pride on his AMERICAN-LAFRANCE steamer. And should young Johnny follow in the footsteps of his father and grandfather, you can be sure that his AMERICAN-LAFRANCE equipment will still be the world's finest.

The AMERICAN-LAFRANCE * trade mark, for generations of fire fighters has been the symbol of dependable, up-to-the-minute fire protection. It is your symbol of security and protection, on the finest fire apparatus money can buy —built by the world's oldest and largest manufacturers of fire apparatus and fire fighting equipment.

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